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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,938	12/06/2000	John Patrick Lemmon	RD-28,051	8817

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
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EXAMINER	
SODERQUIST, ARLEN	
ART UNIT	**PAPER NUMBER**
1743	

DATE MAILED: 02/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/729,938	LEMMON ET AL.	
	Examiner	Art Unit	
	Arlen Soderquist	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,11-25,29-35 and 38-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,11-25,29-35 and 38-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 26, 2003 has been entered.

2. Claims 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claims 14-16 it is not clear how one distinguishes between a first polymerization precursor and a second polymerization precursor without defining the respective precursors as for example the first precursor is a bisphenol and the second precursor is a diaryl ester of carbonic acid. Without this definition both claims 14 and 15 essentially are identical since the precursor is not definite and can be read as mixing one of the precursors with the catalyst prior to delivering the catalyst to the respective region of the substrate.

3. Applicant is advised that should claim 14 be found allowable, claim 15 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). As noted above, without defining the two precursors to be the accrual precursors used in an actual polymerization reaction, the claims cover the same scope because the choice of which precursor is the first and second is totally arbitrary. Hence the actual precursors of the exemplified polycarbonate polymerization could both be considered as either the first or second precursor.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 14-16 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruck (newly cited and applied) in view of Willson (US 6,063,633). In the paper Bruck discusses new catalysts for polyoxamidation. The usefulness of polyoxamide fibers for textile and industrial applications might be increased considerably if a process yielding spinnable products of higher molecular weights were available. A series of new polyoxamidation catalysts belonging to Groups IVb and Vb was discovered that facilitate the preparation of high-motecular-weight polyoxamides with inherent viscosities of up to 1.54 (in m-cresol) by either solid-phase or melt-phase polymerization. Oxalic diesters can be treated with an appropriate diamine in the presence of As_2O_3, Sb_2O_3, SbF_3, GeO_2, Bi_2O_3, or PbO to yield high-motecular-weight, spinnable polymers. The relative order of the effectiveness of these catalysts in promoting the polymerization process is: $SbF_3 \sim As_2O_3 \gg GeO_2 > Sb_2O_3 > Bi_2O_3 \sim PbO$. On page 119 the preparation of the prepolymer is described as taking a quantity of a first monomer, 2-methylhexamethylenediamine, and stirring it with the catalyst for a period of time prior to adding the second monomer, di-*n*-butyl oxalate. This prepolymer is subsequently reacted to form the high molecular weight polymer by heating in one of two methods enumerated on pages 119-120. this is followed by examination of polymer properties. Bruck fails to teach simultaneous testing of catalyst compositions on a substrate.

In the patent Willson teaches a catalyst testing process and apparatus such as a plate is treated with catalyst ingredients to produce cells, spots or pellets holding each of a variety of combinations of the ingredients. The catalysts can also be placed in wells of a multiwell substrate such as a microtiter plate. These catalyst candidates are then contacted with a potentially reactive feed stream or batch of reactants. The reaction occurring in each cell can be measured by infrared thermography, spectroscopic detection of products or residual reactants, or

by sampling followed by analysis to determine the relative efficacy of the catalysts in each combination. Robotic techniques can be employed in producing the cells, spots, pellets, etc. Column 1, lines 27-40 teaches the time and cost savings of this method relative to the prior method in which individual catalyst formulations were handled separately. Column 2, lines 14-22 discuss the variety of supports that can be used including plates with wells. Column 2, lines 56-63 teach the variety of reactions that can be tested including polymerization reactions. The paragraph bridging columns 2-3 teaches the variety of sensing method that can be used including spectroscopic methods such as fluorescence.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to test the catalysts of Bruck with the method of Willson by preparing a plurality of the prepolymers with different catalysts and then simultaneously heating to form the high molecular weight polymers because of the use of comparative analysis and the expected time and cost savings taught by Willson.

6. Claims 1-7, 11-25, 29-35 and 38-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakashita (US 5,646,233) in view of Willson (US 6,063,633) and Bruck as explained above. In the patent Sakashita teaches methods of preparing polycarbonate compositions having outstanding hardness. The polymers are made by polycondensation of aromatic dihydroxy compounds and carbonic acid diesters using catalysts including alkali metal, alkaline earth, basic nitrogen containing compounds and transition metal compounds. These are further enumerated in columns 7-9 and include tetramethylammonium hydroxide, tetraethylammonium hydroxide and tetrabutylammonium hydroxide as the preferred basic nitrogen containing compound. Useful alkali and alkaline earth metal compounds include sodium hydroxide, potassium hydroxide, lithium hydroxide, sodium bicarbonate, potassium bicarbonate, lithium bicarbonate, sodium carbonate, potassium. carbonate, lithium carbonate, sodium acetate, potassium acetate, lithium acetate, sodium stearate, potassium stearate, lithium stearate, sodium hydroxyborate, lithium hydroxyborate, sodium phenoxyborate, sodium benzoate, potassium benzoate, lithium benzoate, disodium hydrogen phosphate, dipotassium hydrogen phosphate, dilithium hydrogen phosphate, disodium salts, dipotassium salts, and dilithium salts of bisphenol A, and sodium salts, potassium salts, and lithium salts of phenol, calcium hydroxide, barium hydroxide, magnesium hydroxide, strontium hydroxide, calcium

bicarbonate, barium bicarbonate, magnesium bicarbonate, strontium bicarbonate, calcium carbonate, barium carbonate, magnesium carbonate, strontium carbonate, calcium acetate, barium acetate, magnesium acetate, strontium acetate, calcium stearate, barium stearate, magnesium stearate, strontium stearate, etc. These substances may be used in combinations of 2 or more. The transition metal catalysts may be use in combination with the above catalysts and include various compounds of zinc, cadmium, tin, lead germanium silicon antimony, bismuth and titanium. The examples show several different catalyst compositions producing polycarbonate products. Although Sakashita teaches the combination of the various catalyst components, it fails to teach simultaneous testing of catalyst compositions on a substrate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to test the catalysts of Sakashita with the method of Willson because comparative analysis and the expected time and cost savings taught by Willson. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the manner in which the different precursors and catalyst are added together as shown by Bruck based on the polymerization reaction and the knowledge of one of ordinary skill in the art relative to the order in which the different components should be reacted or to optimize the preparation process to determine which is the best order for adding the reactants together.

7. Applicant's arguments, see page 10 of the paper filed November 26, 2003, with respect to the obviousness-type double patenting rejection have been fully considered and are persuasive in view of the amendments. The rejection of claims 1-7, 11-25, 29-35 and 38-45 has been withdrawn.

8. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. The Bruck reference clearly shows a polymerization process that has two parts – the mixing of the components to form a prepolymer and the formation of the polymer from the prepolymer. Additionally in forming the prepolymer the two monomers and catalyst are combined in a specified order. The Willson reference contains a number of modifications to the process and apparatus thatillustrate a number of ways that the process or apparatus can be modified. Additionally the Willson reference teaches the use of the method for a number of different reactions in which catalyst are involved and which would have been recognized as requiring different process steps to handle the gases or liquids that are the

normal reactants or products in the individual processes. Thus the knowledge about the different reaction processes by one of ordinary skill in the art would have led one of skill in the art to mix reactants in a certain order as shown by the Bruck reference.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additionally cited art relates to combinatorial generation of catalysts and optimization of processes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arlen Soderquist whose current telephone number is (571) 272-1265 as a result of the examiner moving to the new USPTO location. The examiner's schedule is variable between the hours of about 5:30 AM to about 5:00 PM on Monday through Thursday and alternate Fridays.

A general phone number for the organization to which this application is assigned is (571) 272-1700. The fax phone number to file official papers for this application or proceeding is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Arlen Soderquist

February 12, 2004

ARLEN SODERQUIST
PRIMARY EXAMINER